

Claims

What is claimed is:

1. A component for analyzing molecules, comprising:
 - a transparent substrate having a plurality of pixel locations on a first surface thereof, each location including at least one target molecule,
 - a reflecting plate arranged to face an opposite side of the first surface of said substrate, and
 - a micro lens array interposed between said substrate and said reflecting plate, which comprises a first lens array next to said substrate, a second lens array next to said reflecting plate, and a medium layer interposed between said first and second lens arrays, wherein each lens of said second lens array has its focus on each opposing lens of said first lens array, and said first lens array and said second lens array focus into an image of each of said target molecules on said reflecting plate.
2. A component according to claim 1, wherein said at least one target molecule comprises at least one selected from the following biological materials: cells; proteins; genes; EST's, or other DNA sequences; ligand; receptor; peptide; and nucleic acid.
3. A component according to claim 1, wherein each reflective index of said first lens array, said medium layer, and said second lens array is different.
4. A component according to claim 1, wherein said medium layer is made of resin.
5. A component according to claim 1, wherein said medium layer is made of gas.
6. A component according to claim 1, wherein said reflecting plate at least one of permeates and absorbs light that has predetermined wavelength.

7. A light detecting apparatus, comprising
 - a component according to claim 1,
 - an excitation beam generator arranged to apply an excitation beam to said at least one target molecule on said substrate, and
 - a light detector arranged to detect an emission signal emitted from at least one of said at least one target molecule.
8. A component for analyzing molecules, comprising
 - a transparent substrate having a plurality of pixel locations on a first surface thereof, each location of which includes at least one target molecule, and
 - a corner cube array arranged to face an opposite side of the first surface of said substrate which is designed to reflect an incoming ray of light exactly in the same direction as which it enters into said corner cube array.
9. The component according to claim 8, wherein said corner cube array is designed to at least one of permeate and absorb light having a predetermined wavelength.
10. A light detecting apparatus, comprising
 - a component according to claim 8,
 - an excitation beam generator arranged to apply an excitation beam to said at least one target molecule on said substrate, and
 - a light detector arranged to detect an emission signal emitted from at least one of said at least one target molecule.
11. A method for analyzing molecules, comprising steps of
 - applying an excitation beam generated by an excitation beam generator to at least one target molecule arranged on a transparent substrate,
 - controlling optical paths of emission signals emitted from said excited at least one target molecule by at least one selected from a micro lens array and a corner cube array,

detecting said emission signals, and
analyzing one or more values of detected emission signals.

12.A method according to claim 11, further comprising a step of at least one of permeating and absorbing said excitation beam.